COSEWIC
Status Appraisal Summary

on the

Margined Streamside Moss
Scouleria marginata

in Canada

ENDANGERED
2012

COSEWIC
Committee on the Status
of Endangered Wildlife
in Canada

COSEPAC
Comité sur la situation
des espèces en péril
au Canada

COSEWIC status appraisal summaries are working documents used in assigning the status of wildlife species suspected of being at risk in Canada. This document may be cited as follows:

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COSEWIC
Assessment Summary

Assessment Summary – May 2012

Common name
Margined Streamside Moss

Scientific name
Scouleria marginata

Status
Endangered

Reason for designation
This large, showy moss occurs just above water's edge along small montane streams. A rare western North American endemic, it is known in Canada from a single occurrence in southern British Columbia. Although the species has not been found in recent surveys, it may be present in nearby watersheds.

Occurrence
British Columbia

Status history
Designated Endangered in November 2002. Status re-examined and confirmed in May 2012.

COSEWIC
Status Appraisal Summary

***Scouleria marginata* Britt.**
Margined Streamside Moss — Scoulérie à feuilles marginées
Range of occurrence in Canada: British Columbia

Current COSEWIC Assessment:

Status category:
☐ XT ☒ E ☐ T ☐ SC

Date of last assessment: November 2002

Reason for designation at last assessment: This moss is a large, showy species that occurs just above water's edge along small montane streams. A rare North American endemic, its northernmost and single occurrence in Canada is in southern British Columbia. Although the species was not relocated at this station in recent surveys, the species may be present in nearby watersheds.

Criteria applied at last assessment: D1

If the earlier version of criteria was applied[1], provide correspondence to current version of the criteria:

SSC Recommendation:

☒No change in status and criteria

☐No change in status, new criteria

Evidence (indicate as applicable):

Wildlife species:
Change in eligibility, taxonomy or designatable units: yes ☐ no ☒

Range:
Change in Extent of Occurrence (EO): yes ☐ no ☒ unk ☐
Change in Index of Area of Occupancy (IAO) : yes ☐ no ☒ unk ☐
Change in number of known or inferred current locations:* yes ☐ no ☒ unk ☐
Significant new survey information: yes ☒ no ☐

Explanation:

Explanation: No new sites have been relocated since the original collection. Prior revisits were not successful in relocating the original population. Additional surveys within the region were done in 2005 and 2011 (see Table 1).

* Use the IUCN definition of "location"

[1] An earlier version of the quantitative criteria was used by COSEWIC from October 1999 to May 2001 and is available on the COSEWIC website: http://www.cosewic.gc.ca/eng/sct0/original_criteria_e.cfm

Population Information:

Change in number of mature individuals: yes ☐ no ☐ unk ☒
Change in total population trend: yes ☐ no ☐ unk ☒
Change in severity of population fragmentation: yes ☐ no ☐ unk ☒
Change in trend in area and/or quality of habitat: yes ☐ no ☐ unk ☒
Significant new survey information: yes ☐ no ☐

Explanation:

No population details were taken when the original collection was made in 1977.
Because the original site has not been relocated and no new sites have been found, there is no new information.

Threats:

Change in nature and/or severity of threats: yes ☐ no ☒ unk ☐

Explanation:

Threats as outlined in the Recovery Strategy (Env. Canada 2008), including severe flooding, disturbance by domestic animals, forest fire, competition, and recreation activities.

Protection:

Change in effective protection: yes ☐ no ☒

Explanation:

The only known population occurs on Crown land.

Rescue Effect:

Change in evidence of rescue effect: yes ☐ no ☒

Explanation:

The species is rare in adjacent state and the likelihood of that population being a source for Canadian populations is negligible.

Quantitative Analysis:

Change in estimated probability of extirpation: yes ☐ no ☐ unk ☒

Details:

There are no data to estimate the probability of extirpation.

Summary and Additional Considerations:

In 2008 a Recovery Strategy for Streamside Moss was released by Environment Canada (2008) and a set of studies were identified for completion by 2010. Because the original population has not been recently recorded, nor have new populations been found, these studies have not been completed.

Discussions with members of the Recovery Team, listed below, did not result in new information that would change the status of this species. However, Mike Ryan (pers. comm. 2011) did indicate that he has been looking for this species when he is in suitable habitat, but he has yet to discover any new populations.

B. Tan (the collector of the original location) indicated via e-mail that he could not recall the exact location where he collected *S. marginata* in 1977. He also stated that all of his field notes are currently in a storage unit in California and therefore are not accessible to him at this time.

T. McIntosh revisited the area of the first collection (Table 1, Figure 1) and surveyed in and around the Boundary Lake area. Although McIntosh also surveyed in other drainages along Hwy. 3, which is north of Boundary Creek and the adjacent Upper Priest River drainages, he found only the more common, related, species, *Scouleria aquatica*. A recent review of Dr Tan's collection vouchers suggests that the location on the label may not correspond to the original collection site. Based on Tan's collection numbers from that day, he entered the Boundary Lake area from the west where the drainages form the headwaters of the Priest River. Because there is a documented site of *S. marginata* in the United States section of the Priest River, it seems likely that Tan could have sampled the *S. marginata* within the drainages west of Boundary Lake. The Priest River flows south and empties into the Pend Oreille River in Idaho; Boundary Creek flows east and enters the Kootenay River just south of the U.S. border.

J. Harpel spent approximately 5 hours surveying the area west of Boundary Lake (Table 1, Figure 2). A number of *Scouleria* collections were made from three areas along Monk Creek, a tributary of the Upper Priest River, but all of them have been identified as the more common *S. aquatica*. In addition to this survey work, Harpel revisited the Priest River location in Idaho where R.R. Ireland collected *S. marginata* in 1963 and found *S. marginata*. This location is only 58 km south of the Boundary Lake area and provides further support that *S. marginata* may be in the British Columbia portions of the Priest River.

Acknowledgements and authorities contacted:

Costanzo, Brenda. Margined Streamside Moss Recovery Team Chair, Plant Species at Risk Biologist, Ecosystems Branch, B.C.

Golinsk, Karen. Margined Streamside Moss Recovery Team, Private Consultant, Victoria, B.C.

McIntosh, Terry. Botanist. Margined Streamside Moss Recovery Team. Author of Recovery Strategy for Silver-Hair Moss

Ryan, Mike. Margined Streamside Moss Recovery Team

Tan, Benito. National University of Singapore

Information sources:

British Columbia Bryophyte Recovery Team. 2007. Recovery strategy for the margined streamside moss (*Scouleria marginata* Britt) in British Columbia. Prepared for the B.C. Ministry of Environment, Victoria, BC. 14pp.

Committee on the Status of Endangered Wildlife in Canada, Environment Canada (COSEWIC). 2002. COSEWIC assessment and status report on the margined streamside moss, *Scouleria marginata*, in Canada. Environ. Can., Ottawa, ON.

Environment Canada. 2008. Recovery Strategy for the Margined Streamside Moss (*Scouleria marginata*) in Canada. *Species at Risk Act* Recovery Strategy Series. Environment Canada, Ottawa. 4 p. + Appendix.

Table 1. Survey history for Margined Streamside Moss, *Scouleria marginata* Britt., in the Boundary Lake area

Based on herbarium records at the University of British Columbia and discussions with Terry McIntosh.

Surveyor	Date	Found/not found	Area Searched
Ben Tan	8 Aug. 1977	Found	?
Terry McIntosh	28-29 Oct. 2001	Not found	E of Boundary L
Terry McIntosh with assistant	23-24 Sept. 2005	Not found	E of Boundary L
Judy Harpel	29 Aug. 2011	Not found	W of Boundary Lake

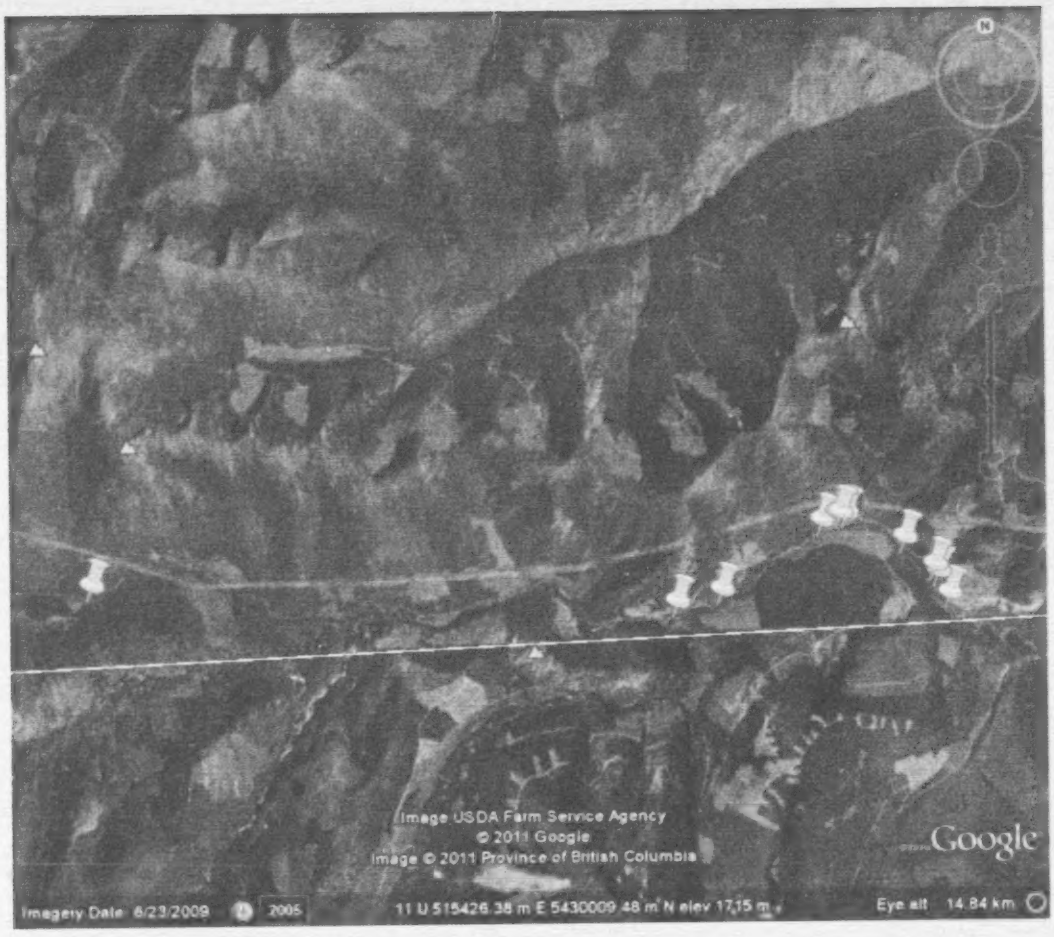
Image USDA Farm Service Agency
© 2011 Google
Image © 2011 Province of British Columbia
Google
Imagery Date: 6/23/2009
2005
11 U 515426.38 m E 5430009.48 m N elev 17.15 m
Eye alt 14.84 km

Figure 1. Map showing the collection locations by T. McIntosh in 2005 since the last status report. No samples of *S. marginata* were found. 2001 sampling sites are not included on this map (see COSEWIC 2001). Boundary Lake is to the west of the leftmost pin on the map.

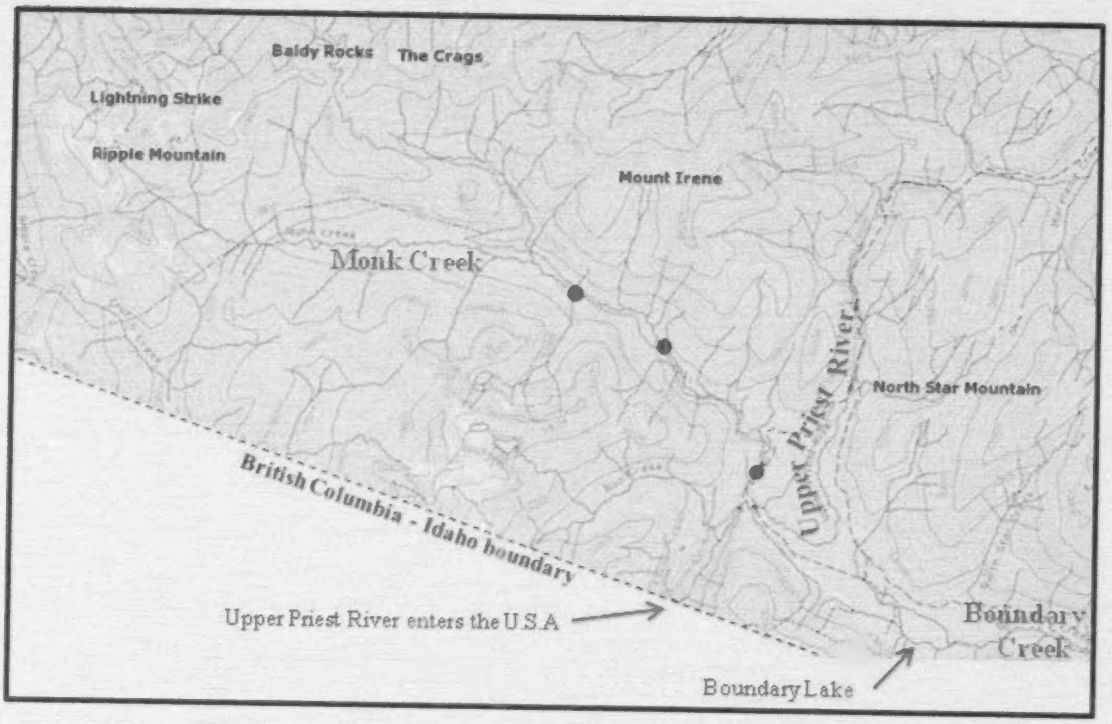

Figure 2. Area surveyed by J.A. Harpel on 29 August 2011. The dots to the west of Boundary Lake represent sites where collections were made.

TECHNICAL SUMMARY

Scouleria marginata Britt.
Margined Streamside Moss — Scoulérie à feuilles marginées
Range of occurrence in Canada: British Columbia

Demographic Information

Generation time (usually average age of parents in the population; indicate if another method of estimating generation time indicated in the IUCN guidelines(2008) is being used)	Yrs unknown
Is there an [observed, inferred, or projected] continuing decline in number of mature individuals?	unknown
Estimated percent of continuing decline in total number of mature individuals within [5 years or 2 generations]	unknown
[Observed, estimated, inferred, or suspected] percent [reduction or increase] in total number of mature individuals over the last [10 years, or 3 generations].	unknown
[Projected or suspected] percent [reduction or increase] in total number of mature individuals over the next [10 years, or 3 generations].	unknown
[Observed, estimated, inferred, or suspected] percent [reduction or increase] in total number of mature individuals over any [10 years, or 3 generations] period, over a time period including both the past and the future.	unknown
Are the causes of the decline clearly reversible and understood and ceased?	unknown
Are there extreme fluctuations in number of mature individuals?	unknown

Extent and Occupancy Information

Estimated extent of occurrence	4 km²
Index of area of occupancy (IAO) (Always report 2x2 grid value).	4 km²
Is the total population severely fragmented?	unknown
Number of locations*	1
Is there an [observed, inferred, or projected] continuing decline in extent of occurrence?	unknown
Is there an [observed, inferred, or projected] continuing decline in index of area of occupancy?	unknown
Is there an [observed, inferred, or projected] continuing decline in number of populations?	unknown
Is there an [observed, inferred, or projected] continuing decline in number of locations*?	unknown
Is there an [observed, inferred, or projected] continuing decline in [area, extent and/or quality] of habitat?	unknown
Are there extreme fluctuations in number of populations?	unknown
Are there extreme fluctuations in number of locations*?	unknown
Are there extreme fluctuations in extent of occurrence?	unknown
Are there extreme fluctuations in index of area of occupancy?	unknown

* See Definitions and Abbreviations on COSEWIC website and IUCN 2010 for more information on this term.

Number of Mature Individuals (in each population)

Population	N Mature Individuals
Boundary Lake	unknown
Total	unknown

Quantitative Analysis

Probability of extinction in the wild is at least [20% within 20 years or 5 generations, or 10% within 100 years].	unknown

Threats (actual or imminent, to populations or habitats)

Threats as outlined in the Recovery Strategy include severe flooding, disturbance by domestic animals, forest fire, competition, and recreation activities remain the same.

Rescue Effect (immigration from outside Canada) unlikely

Status of outside population(s)? *Scouleria marginata* is ranked G3 Vulnerable; S1 in BC, S2 in Oregon; and S2 and Threatened in Washington.	
Is immigration known or possible?	unlikely
Would immigrants be adapted to survive in Canada?	unknown
Is there sufficient habitat for immigrants in Canada?	yes
Is rescue from outside populations likely?	unknown

Current Status

COSEWIC: Endangered (2002, 2012)

Additional Sources of Information:

Status and Reason for Designation

Status: Endangered	**Final Criteria:** D1
Status History: Designated Endangered in November 2002. Status re-examined and confirmed in May 2012.	
Reason for Designation: This large, showy moss occurs just above water's edge along small montane streams. A rare western North American endemic, it is known in Canada from a single occurrence in southern British Columbia. Although the species has not been found in recent surveys, it may be present in nearby watersheds.	

Applicability of Criteria

Criterion A: Not applicable. Decline data unavailable.
Criterion B: Not applicable. Decline and fluctuation data unavailable.
Criterion C: Not applicable. Decline data unavailable.
Criterion D: Meets threshold for Endangered D1, assuming that population numbers are below 250 given the search effort since the last assessment.
Criterion E: Not done.

COSEWIC HISTORY

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) was created in 1977 as a result of a recommendation at the Federal-Provincial Wildlife Conference held in 1976. It arose from the need for a single, official, scientifically sound, national listing of wildlife species at risk. In 1978, COSEWIC designated its first species and produced its first list of Canadian species at risk. Species designated at meetings of the full committee are added to the list. On June 5, 2003, the *Species at Risk Act* (SARA) was proclaimed. SARA establishes COSEWIC as an advisory body ensuring that species will continue to be assessed under a rigorous and independent scientific process.

COSEWIC MANDATE

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assesses the national status of wild species, subspecies, varieties, or other designatable units that are considered to be at risk in Canada. Designations are made on native species for the following taxonomic groups: mammals, birds, reptiles, amphibians, fishes, arthropods, molluscs, vascular plants, mosses, and lichens.

COSEWIC MEMBERSHIP

COSEWIC comprises members from each provincial and territorial government wildlife agency, four federal entities (Canadian Wildlife Service, Parks Canada Agency, Department of Fisheries and Oceans, and the Federal Biodiversity Information Partnership, chaired by the Canadian Museum of Nature), three non-government science members and the co-chairs of the species specialist subcommittees and the Aboriginal Traditional Knowledge subcommittee. The Committee meets to consider status reports on candidate species.

DEFINITIONS
(2012)

Wildlife Species	A species, subspecies, variety, or geographically or genetically distinct population of animal, plant or other organism, other than a bacterium or virus, that is wild by nature and is either native to Canada or has extended its range into Canada without human intervention and has been present in Canada for at least 50 years.
Extinct (X)	A wildlife species that no longer exists.
Extirpated (XT)	A wildlife species no longer existing in the wild in Canada, but occurring elsewhere.
Endangered (E)	A wildlife species facing imminent extirpation or extinction.
Threatened (T)	A wildlife species likely to become endangered if limiting factors are not reversed.
Special Concern (SC)*	A wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.
Not at Risk (NAR)**	A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.
Data Deficient (DD)***	A category that applies when the available information is insufficient (a) to resolve a species' eligibility for assessment or (b) to permit an assessment of the species' risk of extinction.

* Formerly described as "Vulnerable" from 1990 to 1999, or "Rare" prior to 1990.

** Formerly described as "Not In Any Category", or "No Designation Required."

*** Formerly described as "Indeterminate" from 1994 to 1999 or "ISIBD" (insufficient scientific information on which to base a designation) prior to 1994. Definition of the (DD) category revised in 2006.

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